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IMPROVED STAFF-STUDENT RELATIONSHIPS

R. B. SALTER 4T7

In the early months of this year the members of the Medical Society Executive felt that some steps should be taken to improve staff-student relationships and accordingly, a committee was appointed to investigate the problem. As chairman of this committee I am pleased to report briefly the results of investigations which have been made by Mr. S. L. Vandewater, Mr. M. L. Bunker and myself.

The problem of staff-student relationships was divided into two parts, namely, personal interviews and the medical curriculum. Concerning personal interviews, it was felt by the Medical Society Executive and others that each student should have the opportunity of meeting the Dean of the Faculty at least once during his or her medical course. The purpose of such an interview is two-fold. Firstly it would be a method by which the student could seek advice and information concerning his or her future medical career as regards internships, post graduate studies and opportunities for graduates in medical practice. Secondly, the personal interview would serve as a means through which the students could become acquainted with the Dean, thereby creating better understanding between both parties.

Dean MacFarlane has shown genuine interest in the project and has asked this committee to make it generally known to the medical undergraduates that he is willing and anxious to have such an interview with each student during his or her final year. Times for appointments are to be arranged by the final year president. Dr. MacFarlane has also brought this matter to the attention of the Faculty Council and reports that the individual professors would also be glad to cooperate in such a scheme. This personal interview is by no means compulsory and any final year student wishing to avail himself of the opportunity should do so through the year president.

The second project to be investigated by this committee was that of the medical curriculum. It was felt that, since students always have had, and always will have suggestions to offer regarding the curriculum, some simple, dignified scheme should be organized to deal with the problem effectively. The proposed plan, drawn up by this committee with Dean MacFarlane is as follows. Any student with a suggestion will bring it to the attention of his or her year president who, in turn will bring the suggestion before the Medical Society Executive for discussion. The suggestion will then be put in the hands of the "curriculum committee" which is made up of three members of the Executive. This special sub-committee will then meet with the Dean of the Faculty to discuss the given suggestion following which the Dean himself will present the problem to the Staff Curriculum Committee for consideration. Dean MacFarlane has stated that the Staff Curriculum Committee are very willing to cooperate with this scheme. The "Curriculum Committee" of the Medical Society is to be made up of three Executive members and headed by the Chairman of Toronto CAMSI who, it is felt, is in contact with student leaders of all Canadian Medical Schools and hence with their curricular problems. The other members of the committee will be a third and fourth year student appointed from and by the Medical Society Executive. It is to be clearly understood by all students that this plan is not designed to stir up unreasonable criticisms and complaints but rather to achieve closer co-operation and understanding between the students and their Faculty.

These two projects toward the improvement of staff-student relationships will go into operation in September, 1947. It is hoped and expected that they will be of great benefit to both groups. This committee would like to take the opportunity to thank Dean MacFarlane on behalf of the medical undergraduates for his sincere cooperation regarding these projects.

CIRRHOSIS OF THE LIVER

HUGH CLELAND, 4T7

DEFINITION:

Cirrhosis of the liver may be considered a diffuse, chronic, progressive, destructive lesion of liver parenchyma, exhibiting three main features which allow it to be considered a disease entity despite a various etiology, pathology and symptomatology. These features are:

1. Destruction of liver cells, which may lead to hepatic insufficiency when extensive and severe.
2. Compensatory hyperplasia of liver parenchyma.
3. Scar tissue formation and contraction, which may lead to interference with the flow of portal blood and/or obstruction to the liver ducts.

CLASSIFICATION:

Classification is difficult because of the complexity of etiological factors, the admixture of clinical and pathological classifications, and the varying degrees of the above outlined features.

1. *Toxic cirrhosis;* Subacute yellow atrophy differs from acute yellow atrophy only in degree and toxic cirrhosis is a term coined by Mallory to designate a healed subacute yellow atrophy. It is generally regarded as rare but Mallory reported 8% of 270 cases of cirrhosis. The patient may or may not have shown recurrent clinical acute hepatitis.

2. *Portal cirrhosis;* This is much the commonest cirrhosis and will be considered separately.

3. *Biliary cirrhosis;* a) Obstructive biliary cirrhosis is much less common than portal cirrhosis. Histological differentiation may be difficult and Mallory claims that small infarcts healing by fibrosis distort the otherwise periportal fibrosis. Recovery may result from the relief of extrahepatic biliary obstruction provided the condition has not progressed to irreparable liver damage. Some cases are presumably due to intrahepatic obstruction from infection.

b) Hanot's cirrhosis is a rare condition occurring in young persons. There is a clinical picture of jaundice, chronic fever, leucocytosis, a very large smooth liver and a very large spleen, which is supposed to correspond with a pathological picture of a non-obstructive, hypertrophic biliary cirrhosis.

c) Xanthomatous biliary cirrhosis is a very rare but interesting type of cirrhosis associated with cutaneous Xanthomatosis. Lipoid deposits of cholesterol are allegedly responsible for the biliary obstruction.

4. *Pigment cirrhosis;* An uncommon condition in which a large, firm, bronzed liver is usually associated with fibrosis of the pancreas and diabetes, and generalized hemosiderosis.

5. *Banti's syndrome;* Clinical cirrhosis of the liver in splenic anemia is uncommon.

6. *Syphilitic cirrhosis;* Both congenital and acquired forms are now rare.

7. *Rare types;*..Cardiac cirrhosis, thyrotoxic cirrhosis, Wilson's disease, Osler-Rendu-Weber syndrome, cancer cirhosis, Schistesomiasis Japonica.

Etiology and Pathogenesis:

The current concept has been that cirrhosis is produced by recurrent episodes of clinical or subclinical hepatitis due to infections or toxic agents, resulting in an interplay of necrosis, regeneration and sclerosis. This concept is extended in the light of recent investigation in the field of nutrition.

A relative or absolute deficiency of certain nutritive materials can produce cirrhosis. Moreover, an adequacy of these materials is important in preventing liver injury from other sources, and in therapy when injury has occurred.

This knowledge has come from animal experimentation, and, although not altogether proven in man, it is important because of its bearing on present concepts of the treatment of chronic liver disease.

Cirrhosis, as defined, may be produced as a sequel to fatty infiltration or necrosis. Substances that prevent the fatty infiltration of the liver are called lipotropes or lipotropic factors, and their action is due to constituent labile methyl radicles (CH_3). Substances that prevent the necrosis of theliver are certain proteins and amino acids, and their action is due to constituent labile sulphydryl radicles (SH).

Methionine, present in casein and milk, is a precursor to both the labile methyl and sulphydryl radicles. Lecithin and choline (a component of lecithin) supply the labile methyl group. Cystine supplies the labile sulphydryl group. These are probably the most important but not all the significant dietary factors.

Portal Cirrhosis:

Definition: A chronic progressive destruction of the liver cells in which overgrowth of connective tissue occurs coincident with regeneration, thereby dividing the liver lobules into irregular areas. Interference with hepatic function and obstruction of portal circulation ensues.

Etiology: The pathogenesis is slow and the peak incidence is in the fifth decade. The disease is three times commoner in males, which parallels the incidence of alcoholism.

Generally accepted etiological factors:

1. A history of alcoholism is obtained in about 50% of cases. It is now thought that associated starvation and to a lesser extent, the Vitamin B deficiency are more important.
2. Dietary factors have been discussed.
3. Exposure to toxic agents, usually gives the pathological picture of Toxic Nodular Cirrhosis.
4. History of previous jaundice.

Clinical Picture:

Cirrhosis of the liver is rarely suspected prior to the onset of one of the cardinal symptoms, ascites, hematemesis or jaundice. There may be no premonitory symp-

toms but more commonly the onset is insidious with vague, non-specific symptoms, mainly gastrointestinal and of an average three years duration. There is loss of weight and strength and general sluggishness.

An early diagnosis should be suspected in a patient complaining of periodic bouts of digestive disturbance such as anorexia, morning nausea and vomiting, gaseous distention and irregularity of the bowels, associated with an irregular dietary history and/or alcoholism, in whom an enlarged liver is found.

Hepatomegaly is the mainstay of early diagnosis. The clinical features depend on the stage of the disease process. For descriptive purpose we may say that the signs and symptoms are chiefly due to portal obstruction and partly due to hepatic insufficiency.

Portal Obstruction:

1. *Congestion of intestine:* This is the probable cause of early symptoms including flatulent indigestion, anorexia, nausea and vomiting and bowel irregularities. Note that alcoholic gastritis may cause identical symptoms and may also give rise to severe hematemesis. Also the incidence of peptic ulcer and cholelithiasis is high in cirrhotics.

2. *Splenomegaly* occurs in as many as 80% of cases but frequently late in the course of the disease, after ascites has developed (making it more difficult to feel). Presumed to be a manifestation of portal hypertention with resultant local hyperplasia. There may be a toxic factor.

3. *Ascites* is common (78%) but late. Nearly half the cases are dead within six months after its onset. It is next in frequency to cardiac and renal ascites, and is due chiefly to obstruction, but hypoproteinemia is often contributary. The latter is the chief cause of the frequent dependent edema but pressure of ascitic fluid on the Interior Vena Cara may contribute.

4. *Collateral circulation dilatation:* All anastomatic channels are not involved to the same degree.

(a) Oesophageal varices demonstrated by oesophagoscopy or X-ray. Present in 25% of all cases and have been reported to cause as high as 25% of all deaths. Hematemesis and gross blood in the stool is usual, but hemorrhage may be concealed with occult blood in the stool.

(b) Varicosities of abdominal veins and in rare cases the "Caput Medusae". Occasionally there is a continuous thrill and murmur in the epigastrium. Clinical dilatation of surface veins is present in 57% of cases with ascites. The direction of flow is normal (reversal of flow in caval obstruction). Infra-red photography may demonstrate these varices.

(c) Hemorrhoids.

Hepatic Insufficiency

In established liver disease of even moderate or severe degree, few reliable and authentic signs and symptoms of hepatic insufficiency are known. The complexity of function and the great reserve power of the liver are responsible for the protean manifestations.

In the later stages the general appearance of the patient is characteristic The "hepatic facies" shows sunken, wasted, pinched features, with muddy complexion and dilated vascular channels about the nose. There is general listlessness and apathy, with atrophic musculature and dependent edema. Spider naevi are frequent about the face, neck and arms and when seen are pathognomonic. The patient may be jaundiced. There is usually evidence of the portal obstruction which has already been described. Some less common features are cerebral disturbances, fever, peripheral neuropathies and severe abdominal pain.

The skin lesions associated with portal cirrhosis are interesting but their cause is unknown.

(a) Spider angiomata are present in 15% of cases and may occur long before clinical symptoms. "Bright red lesion characterized by a central point from which fine hair-like branches radiate for a distance of about 1 cm., usually occurring on the skin of the face, arms and upper trunk, and only occasionally on the lower trunk and limbs."

(b) Telengectases occur in 12% of cases but are not pathognomonic.

(c) "Liver palms". Erythema of the thenar and hypothenar eminences. Can occur in other conditions such as rheumatoid arthritis.

Almost every physiological activity of the liver may be deficient in greater or less degree and this may be variously reflected in the clinical and laboratory picture. The spheres of liver function are listed and the common effects noted.

Carbohydrate metabolism: Galactose tolerance may be reduced.

Fat metabolism: Interference with fat transport may be the primary factor in pathogenesis. Fatty liver may contribute to the firm, non-tender, sharp-edged, clinical hepatomegaly. Fibrous tissue formation and contraction may later reduce the size and cause nodularity.

Protein metabolism; Hypoproteinemia is due to a failure of protein production. Albumin is harder to produce, explaining the reversal of the albumin-globulin ratio. Cephalin flocculation may show abnormal proteins. Hypoprothrominemia contributes to a hemorrhagic tendency.

Pigment metabolism; Jaundice may never appear but it is common in the terminal stages and 50% of cases die with in two months of its onset. A variable type of jaundice may appear early and be transient. Tests for subclinical jaundice may help in diagnosis.

Detoxification function, as measured by the hippuric acid test, may be deficient.

Blood clotting; A hemorrhagic tendency may exist due to low fibrinogen and prothrombin. There may be a thrombocytopenia, probably due to the pathological process in the spleen.

Storage of antianemic factor; A variable degree of anemia is common and some cases are of the macrocytic type. The leucocytes are normal or reduced in number.

Vitamin metabolism; A variable degree of deficiency in the fat soluble vitamins (A D E K) is common. Lipotropes are contained in the B complex and adequate amounts should be given in treatment.

Special Methods of Investigation

1. Liver function tests are remarkably normal and of little diagnostic aid in early cases. The most constant and significant finding is an alteration in the serum proteins.
2. Vitamin A deficiency tests.
3. Oesophagoscopy, X-ray and infrared photography for varices.
4. Peritoneoscopy.
5. Liver biopsy.

Treatment of Cirrhosis of the Liver

There is no specific treatment and the principles of therapy are much the same as those of liver disease in general. An attempt is made to improve the general health and hygiene, withdraw damaging agents, supply an adequate, protective, and perhaps therapeutic diet, and by so doing aid the regeneration of hepatic cells and establishment of collateral circulation. Death is usually in hepatic coma from liver insufficiency, intercurrent infection or hemorrhage. A commonly used daily diet contains, sufficient carbohydrate, protein 70 to 100 gms., fat 50 gms., additional Vitamin B complex. A high carbohydrate diet if effective, is laid down in the liver replacing the fat and sparing the protein.

Experimentally excessive fat and/or reduction in lipotropes produce cirrhosis, therefore in treatment the fat is reduced and lipotropes supplied. High quantity and quality of protein supplies labile methyl and sulphydril radicles, and, amino acids for repair. The best protein is supplied by milk and casein.

The balance of treatment is symptomatic. Anemia may require iron or liver. Hemorrhage and ascites are treated as they arise.

Surgical attempts to improve collateral circulation are being advocated.

Summary:

Cirrhosis of the liver is considered as an entity and a classification given. Some general remarks on etiology and pathogenesis are followed by description of the clinical picture and treatment of portal cirrhosis.

An attempt is made to present a simplified account for undergraduate study.

PROGRESSIVE OR MALIGNANT EXOPHTHALMOS

MICHAEL TURKO, 4T7

Progressive or malignant exophthalmos is an intensely progressive and dangerous proptosis of one or both eyes, the early recognition of which, can save the patient from blindness or death.

General. Although this condition is sometimes idiopathic, it is most often associated with hypothyroidism rather than hyperthyroidism as is commonly believed.

Exophthalmos which is characteristic of a certain type of goitre usually subsides following operative treatment of the gland; ordinarily, it is not a matter of any great concern to the surgeon nor does it require special treatment. In occasional instances, however, this protrusion of the eyes may not subside after operation, and then constitutes a disturbing residual symptom of the disease. In still other instances, exophthalmos after thyroidectomy becomes progressive, and many such cases are reported in the literature. In the extreme instances, this condition has led to blindness, ophthalmitis, and death occurring from orbital infection and resultant meningitis.

In cases of idiopathic progressive exophthalmos, no signs of hyperthyroidism need be demonstrated.

Causes of Exophthalmos. The cause of exophthalmos in hyperplastic thyroid disease and in the so-called idiopathic cases is not definitely known, and therefore has given rise to innumerable theories:

1. Increase of retobulbar fat. (Basedow, Mendel, Bristowe)
2. Sympathetic stimulation of smooth musculature of orbit produces a dilated pupil, widening of palpebral aperture and circulatory phenomena. (Claude Bernard)
3. Contraction of the smooth musculature in Tenon's fascia. (Riche, Jaboulay, Abadie)
4. Nonstriped orbital muscles differing in arrangement and disposition. (Landstrome)
5. Stasis of lymph vessels in orbit. (Birch—Hirschfeld)
6. Retrobulbar venous engorgement and vasomotor toxin. (F. Muller, Sattler)
7. Dilated orbital arteries are believed to be the cause by many.
8. Weakening and elongation of ocular muscles. (Cooper)
9. Pathologic change in the central nervous system e. g. injuries of the restiform body. (Brown-Sequard)
10. After injection of methyl cyanide and paraphenylendiamine. (Grunert, Sato, Gibbs)
11. The injections of the thyrotropic, anterior pituitary extract produced exophthalmos in animals from which the thyroid gland and sympathetics had been removed. The gross and microscopic picture of the orbital muscles is indistinguishable from that of human beings in whom low basal metabolic rates were present. (Smelzer, Evans, Marine and Rosen)

None of the theories has proved to be satisfactory, and none of the experimental work has been successful in producing marked or progressive exophthalmos, except in cases of the thyrotropic hormone.

Clinical Picture.

Males and females are equally affected. Age varies from 28 to 53. When a patient presents himself for treatment two months or more after thyroidectomy, the basal metabolic rate varies from normal to -32.

Symptoms and Signs:

1. Aching behind globes on movement.
2. Impairment of vision.
3. Impairment of mobility of globes.
   (a) upward movements affected most and in some are lost completely.
   (b) downward movements affected least.
   (c) lateral movements limited in varying degrees.
4. Marked puffiness of lids; scleral oedema in various stages, and lacrimation.
5. Lacrimal glands enlarged and palpable.
6. Protrusion of mucus membrane from beneath the lower lids.
7. On raising the lids, the insertions of the recti muscles can be seen in some cases.
8. Generalized contraction of fields.
9. Retinal hemorrhages and choked disc.
10. Great resistance on atempting to press globes backwards. Intra-ocular tension is not altered.
11. In more advanced stages, corneal ulceration may be seen.

Case Report

A.D., age 39, referred by Doctor Dowling of Providence, Rhode Island, was admitted to the University of California Hospital in June, 1932, with a history of diplopia in December, 1930, for which glasses were fitted. In March, 1931, his difficulty had increased. In June, 1931, exophthalmos of the left eye was noted. A malignant tumor of the orbit was suspected and roentgenotherapy administered. In September, 1931, however, enucleation became necessary; no malignant growth was found, and the pathologic report was chronic inflammatory disease. Two months later, the remaining eye, the right, began to show exophthalmos. At this time, evidence of thyrotoxicosis appeared. The basal metabolic rate was plus 24, and late in the same month a thyroidectomy was performed. In January, 1932, the basal metabolic rate was plus 6. Nevertheless, the exophthalmos progressed and, by September, 1932, vision was blurred and there was swelling of the optic disc to about four diopters, with retinal hemorrhages.

Upon admission to hospital, in September, 1932, the basal metabolic rate was minus 13. There was great retrobulbar resistance. In addition to the retinal hemorrhages, exudate had appeared. The exophthalmometer reading was 31; the visual acuity was 120/200. Movements of the globe were limited and there was

contraction of the visual field. Upon elevating the lid, the insertions of the muscles were visible. Operation (see treatment) was performed in October, 1932. There was reduction of 4 mm. in the exophthalmometer readings while the patient was still in the hospital. The hemorrhages and swelling of the disc disappear rapidly and there was improvement in visual acuity. Six years later, the patient considered the eye to be completely restored in vision and movement, although it was a little more prominent than normal.

The above case indicates that progressive exophthalmos may precede the development of recognizable thyrotoxicosis as well as appear subsequent to it.

Pathology

Pathological changes responsible for progressive exophthalmos seem to be constant in all cases.

Gross

Orbital muscles are enlarged enormously, 3 - 10 times their normal size. Depending on the duration of process, the colour of muscles varies from a pale, oedematous, half-cooked appearance, to a deep colour. The amount of fibrous tissue varies, and the muscles feel firm and somewhat rubbery. In later stages, hyaline changes are seen, and muscles are gritty when cut with a knife.

Microscopic

There may be varying degrees of degeneration of the muscle, fibrosis and cellular infiltration.

Mildest lesion shows Zenker's degeneration, which is a swelling of muscle fibers followed by a loss in striations. Later, muscle fibers become a fibrillary substance which takes stain for collagen. At the same time, a definite interstitial oedema is seen.

In more pronounced cases, there is a proliferation of round cells which come from the intermuscular mesenchyme. Some of these cells are lymphocytes or immature plasma cells, but many are embryonal. Small and large accumulations are present around the blood vessels.

In still later stages, the fibrils condense into a dense scar tissue. Tissue shows early, intermediate and late stages.

Arteriolar walls are somewhat thickened and are infiltrated themselves by mononuclear cells. In places, these cells appear beneath the intima, causing a slight bulging of the endothelium.

Differential Diagnosis

1. Tumors of the orbit.
2. Arteriovenous aneurysms.
3. Mucoceles.
4. Orbital infections.
5. Cerebral hemorrhage.
6. Chronic diseases such as syphilis and tuberculosis.
7. Cardiovascular diseases.

Treatment

A variety of treatments has been tried for these unfortunate patients, such as tarsorrhophy and canthotomy, plastic operations on the conjunctiva, incision of the lids or removal of fat, section or removal of cervical sympathetics, giving of thyroid gland by mouth, and deep roentgen therapy.

None of these has been of any value. The operative procedure undertaken by most clinics now does not present any particular technical difficulty, and carries very little operative hazard. The extent of the decompression is of the utmost importance, for inadequate decompression is likely only to aggravate the condition. Roentgenologic studies of the frontal and sphenoid sinuses and their relation to the orbital plates and optic foramina are always necessary. The distance to which the frontal sinuses extend into the orbital plate varies greatly, and it is most unfortunate when these sinuses are of unusual size, as the area of bony removal in the anterior fossa is restricted by this anatomic condition. The same is true, to a lesser degree, in regard to the ethmoids. Some of the poor results obtained are probably due to inadequate decompression.

The operation consists of removing not only the area of bone over the roof of the orbit, but carrying the removal of bone lateralward into the temporal fossa and up close to the orbital rim, removing that portion of the lateral wall down to the antrum. Posterior to this, the removal of bone is continued back into the middle fossa, removing the posterolateral portion of the orbit down to, and about, the orbital fissure. When chocked discs are present, the optic foramina are unroofed. This immediately gives a much greater recession of the eyes, and postoperative hazard is minimized.

Some sources report favourable results in operating on both eyes at the same time. The oedematous and protruding conjunctivae prior to operation may also appear after operation, and be very slow in subsiding. Any lack of care during this period may result in the drying of the cornea, and result in permanent damage. Great care is required: Scrupulous cleanliness, protection of the eyes with a mild boric, ophthalmic ointment, and prevention of the drying of the conjunctivae.

Prognosis

Convalescence is characterized by a transient increased oedema of the lids and conjunctivae. As it subsides, the proptosis gradually lessens, and the recession of the globes continues over many months. There is early improvement in vision, subsiding of the papillitis, and disappearance of hemorrhages and exudate. There is no tendency to recurrence. The globes show faint pulsation, of which the patient is unaware. Of the 31 cases reported up to 1938 in the literature, there were 2 two deaths and four poor results after operation. The deaths were due to meningitis resulting from corneal ulceration.

Conclusion

From this brief account, we can conclude that:

1. Progressive or malignant exophthalmos, if diagnosed early, and operated on, treatment will eliminate loss of vision and death in 85% of cases.

2. The pathology lies in the orbital muscles and is the same in all cases, no matter if idiopathic or associated with hyperthroidism and hypothyroidism.
3. The cause is thought to be linked with the thyrotropic hormone of the anterior pituitary gland.

NAFFZIGER:

Annals of Surgery 108; October, 1938. Pages 529-544.
Archives of Ophthalmology 9: January, 1933: pages 1-12.
Western Journal of Surgery 40, October 1932: pages 530-543.
Annals of Surgery 94: October, 1931: pages 582-586.

THE DIAGNOSIS AND PROPER HANDLING OF THE UNCONSCIOUS PATIENT

J. F. ROSS FLEMING, 4T7

Summoned from a deep slumber late one night, a young junior interne at a large general hospital hastily pulled on his jacket and made his way to the Emergency Ward. Here, he was confronted with a problem that was entirely new to him: the patient was unconscious. How was he to proceed, in order to arrive at the proper diagnosis and institute intelligent treatment?

It is the purpose of this paper to answer such a question by discussing the factors which will enable one to make a diagnosis as exactly and efficiently as possible so that proper early treatment may be started.

Three percent of patients admitted to one large city hospital are in coma (1), and although the frequency of this condition may not be so great elsewhere, it is a very common and important condition.

The plan of this paper is as follows:

(1) Definitions.
(2) Aetiology and classification.
(3) Immediate care of the patient.
(4) History.
(5) Physical examination.
(6) Laboratory investigation.
(7) Treatment.
(8) Summary.

Definitions

Coma may be defined as "a state of absolute unconsciousness, as judged by the absence of any psychologically understandable response to external stimuli or internal need" (2). Semicoma is a state in which "psychologically understandable responses are elicited only by painful or other disagreeable stimuli" (2). For the purposes of this paper, the term "unconsciousness" will be used to cover both these states.

Unconsciousness may occur in two main types of conditions:

(a) As a terminal phenomenon in many severe diseases.

(b) As an early and prominent feature in a disease (3). In this paper, the second group will be chiefly discussed.

Aetiology and Classification

The causes of unconsciousness are numerous. In order of frequency, *alcoholism* heads the list, accounting for about one half the cases. *Trauma,* especially head injuries, accounts for 15%, while another 15% are due to *cerebral vascular accidents.* Other common causes of unconsciousness, each responsible for about 3% of the cases, are chemical poisoning, epilepsy, pneumonia, and acute menin-

gitis. Some rarer causes are cardiac failure, exsanguination, syphilis of the central nervous system, uraemia, and eclampsia (1). There are so many conditions in which unconsciousness may occur, that in order to be aware of all the possibilities, it mght be well to think of them in an organized classification, such as follows:

(a) *Vascular* (e.g. cerebral vascular accidents).
(b) *Toxic* (i) Metabolic (e.g. diabetic coma).
(ii) Non-metabolic (e.g. chemical poisoning).
(c) *Infectious* (i) Acute (e.g. lobar pneumonia, meningitis).
(ii) Chronic (e.g. syphilis of the central nervous system).
(d) *Physical* (e.g. trauma, sunstroke).
(e) *Psychotic* (e.g. catotonia, hysteria).
(f) *Miscellaneous* (e.g. epilepsy, intracranial space-occupying lesions).
(g) *Combinations of above* (e.g. alcoholism and brain injury).

Immediate Care of the Patient

The first and most important step in the handling of an unconscious patient is to establish and maintain a free airway. Respiratory obstruction may contribute to the fatal outcome of the condition, and is usually preventable. Most commonly the respiratory obstruction is due to relaxation of the tongue and pharynx, allowing the tongue to fall back into the posterior pharynx; this is prevented by raising and pulling forward the mandible, or inserting an airway. There may be an accumulation of mucus, blood, or vomitus, because the swallowing and coughing reflexes are lost: this is best treated by putting the patient in the prone or semi-prone position, and aspirating the pharyngeal contents. The patient should never be in the sitting position, and should never be left unsupervised (4, 5).

If the patient is in surgical shock, immediate shock treatment takes precedence over everything else. This of course consists of administering warmth, oxygen, and intravenous blood or plasma. Morphine is not given, because of the possibility of cranio-cerebral injury, increased intracranial pressure, or morphine poisoning (12).

History

A history must be obtained if at all possible, either from the patient's friends or relatives, the ambulance attendant, or the police. A history has been found to be of immediate diagnostic importance in over three quarters of all unconscious patients (6).

A history of any previous illness is of great assistance: a history of diabetes at once suggests diabetic coma or insulin shock. If the patient was a known hypertensive, one might well suspect a cerebral vascular lesion, heart failure, or uraemia. If the patient was known to have had a recent infection, his unconsciousness may be due to pneumonia, meningitis, encephalitis, brain abscess, or even diabetes or uraemia. A story of convulsions might suggest cerebral haemorrhage, epilepsy, syphilis of the central nervous system, eclampsia, or even uraemia. If the patient had complained of headache and vomiting, he might have meningitis, subarachnoid haemorrhage, or a brain tumor. Intracranial space-occupying lesions are also

suggested by a history of abnormal speech, gait, or mentality. If the patient was known to be pregnant, one must consider rupture ectopic gestation, or eclampsia. (7).

If there is a history of injury, one must remember that the injury may be secondary to some other underlying cause of unconsciousness.

The type of onset of the unconsciousness is also important. If it occurred suddenly, especially if the patient was in action, one should be suspicious of cerebral haemorrhage; if it occurred more slowly, with the patient at rest, the lesion is more likely cerebral thrombosis. (8).

If the patient was a known alcoholic or drug addict, one must remember that although the unconsciousness may be due to alcoholism or poisoning, it may also be due to some other cause.

Physical Examination

The next step in the investigation is to assess the *level of consciousness.* This is of the utmost importance, especially in cranio-cerebral injuries, in order to follow the progress of the patient. By observing what type and degree of stimulus the patient will respond to, the examiner will have a reasonably accurate idea of the level of consciousness.

Following this, it is important to know if the vital centres are affected. This information is obtained when one knows the pulse and respiratory rates, the temperature, and the blood pressure. These values should be charted at frequent intervals, especially in suspected cranio-cerebral injuries. (5).

The pulse rate. A very rapid pulse occurs in unconsciousness due to brain trauma, diabetes, and infectious disease. An irregular pulse occurs in heart disease. A slow pulse may be due to Stoke-Adams disease, or an intracranial space-occupying lesion.

The respiratory rate. In cranio-cerebral injuries, respiration is usually abnormal, often being laboured and irregular, and it may be either slow or fast. An increased respiratory rate may also occur in unconsciousness due to infectious diseases, especially pneumonia. Cheyne-Stokes respiration occurs in heart failure or uraemia. Kussmaul breathing may occur in acidosis. A slow respiratory rate may be due to a brain tumor or to morphine poisoning. (7).

The temperature. If this is elevated, one suspects an inflammatory or intracranial lesion; hyperthermia is an important sign of cranio-cerebral injuries. A lowered temperature may be due to carbon monoxide poisoning or diabetes.

An increased *blood pressure* may occur in uraemia, eclampsia, or conditions in which the intracranial pressure is elevated. The blood pressure is decreased in cranio-cerebral injuries, and in trauma leading to surgical shock.

After the level of consciousness and state of the vital centres are ascertained, the examiner then concludes the *neurological examination.* Although it is limited to an objective examination, this procedure is most important. If a hemiplegia or hemiparesis is present, there is almost certainly a cranial or intracranial lesion (3). A stiff neck and positive Kernig's sign point to meningitis or cerebral vascular

lesions. The pupils may vary greatly in size and reaction: large fixed pupils occur in severe brain injuries, and in alcoholic and cocaine poisoning; irregular pupils may be due to brain damage; small pupils suggest opiate poisoning or pontine haemorrhage, while fixed pupils occur in syphilis of the central nervous system; unequal pupils are common in cerebral haemorrhage and trauma; the pupils are of no diagnostic value in alcoholism (9). Examination of the fundi is also of value: one may recognize a diabetic or hypertensive retinopathy, or papilloedema. The hysterical patient will react to strong stimuli (such as pressure on the supra-orbital nerve, or pin-prick); the catatonic patient will keep his arm in whatever position it is put.

While the above examination is taking place, there are certain other details that should be noted, including the approximate age of the patient, any odour to the breath, the colour of the skin, convulsions, signs of dehydration, local signs of injury, and so on.

The age of the patient will often give a clue leading to the correct diagnosis. Degenerative processes such as cerebral vascular lesions, heart failure, or uraemia, tend to occur in elderly patients. Infections such as meningitis usually occur in younger persons, although pneumonia occurs commonly in very old people. In the younger age group, spontaneous subarachoid haemorrhage should not be forgotten.

By the odour of the breath, one can suspect alcoholic coma; this diagnosis may be aided by the absence of other findings or by the presence of hyperaemia. But there is always the possibility that *there may be an alcoholic odour to the breath with some other underlying cause for the unconsciousness.* The smell of acetone on the breath suggests either diabetes or uraemia.

The colour of the skin is important. A cherry red colour is caused by carbon monoxide poisoning. Cyanosis may indicate heart failure or pneumonia as the cause of the unconsciousness. Pallor may be present in surgical shock, haemorrhage, or the anemias, but is of little value in differential diagnosis. Jaundice occurs in unconsciousness due to hepatic disease, and melanotic pigmentation suggests Addison's disease. (7).

By observing any *convulsions* that occur, one may be able to tell whether the unconsciousness is due to a cerebral vascular lesion, syphilis of the central nervous system, epilepsy, alcoholism or uraemia.

Dryness of the skin suggests *dehydration*, and this may occur in diabetic coma, intestinal obstruction, or severe vomiting due to poisoning.

It is very important that a thorough search be made for *local signs of injury* or *scars.* These may give the examiner much insight into the cause of the unconsciousness. However, the injury may be only incidental, as in the case of a man who suffers from a cerebral haemorrhage, falls over and strikes his head. The finding of needle scars suggests diabetes or drug addiction. In the epileptic patient, one may see wounds or scars in the mouth, especially under the tongue.

The ears and nose should be examined with care, to see whether cerebro-spinal fluid or blood is coming from either, as an indication that there is a fracture of

the base of the skull; subconjunctival haemorrhage may afford similar evidence. (3).

After these observations have been made, the physical examination is completed by examining the chest and abdomen.

In *examination of the chest,* consolidation means that the unconsciousness is likely due to pneumonia. Signs of fluid suggest empyaema. Signs of heart disease may be present if the unconsciousness is due to cerebral embolism. Signs of heart failure afford an obvious diagnosis, but oedema of the ankles may also occur in uraemia.

Abdominal examination showing distention and rigidity suggests peritonitis rupture of a viscus, ruptured ectopic pregnancy, or some other serious intraperitoneal lesion. A lower abdominal tumour might suggest eclampsia.

Laboratory Findings

Lumbar puncture should be routine in all cases of non-traumatic unconsciousness of sudden onset, unless the patient is in shock, or has evidence of increased intracranial pressure as manifest by the presence of papilloedema; it is an especially useful procedure in cases in which the diagnosis is obscure (6), (7). The initial pressure is first noted: if decreased, suspect diabetes; if increased, the patient may be suffering from a cerebral vascular lesion, meningitis, head injury, an intracranial space-occupying lesion, or syphilis of the central nervous system. The colour of the fluid is noted, and if it is bloody (and a bloody tap is excluded), cerebral haemorrhage or brain damage may be responsible for the unconsciousness. If the fluid is purulent, meningitis is present, and fluid is taken for smear and culture. Fluid should also be taken for cell counts, protein, sugar content, Wasserman, and other tests as indicated. (10).

The patient must be catheterized, and a *urinalysis* done. If sugar is present (and in known diabetics), a blood sugar is done at once. A positive test for acetone means diabetes, uraemia, or severe dehydration. The presence of albumin suggests eclampsia, uraemia, heart failure, hypertension with renal disease, or chemical poisoning.

The *blood examination* should consist of red and white cell counts, haemoglobin, and smear. If the white cell count is high, a blood culture should be done. The blood sugar level is of great importance in unconscious patients: a high sugar means diabetic coma; a low sugar may be due to insulin reaction, Addison's disease, islet cell tumour of the pancreas, or disease of the anterior lobe of the pituitary. A high N.P.N. confirms the diagnosis of uraemia. Other blood tests are done as indicated—Wasserman, bromide level, spectroscopy for carbon monoxide poisoning, etc.

Although not always practicable, a *gastric lavage* is often useful in cases of poisoning and severe alcoholism, not only as a diagnostic measure, but also therapeutically. Care must be taken to prevent regurgitation of the stomach contents around the tube, and subsequent flow into the trachea, as the swallowing and coughing reflexes may be absent; this is accomplished by the use of a head-low position (11). The stomach contents are saved for chemical examination.

X-rays should be taken as soon as possible, if indicated. Skull plates are taken if a head injury is suspected, or if the diagnosis is not evident (6). Chest plates may reveal the cause of unconsciousness to be pneumonia, empyaema, or heart failure.

An *electrocardiogram* may be taken to confirm a suspected diagnosis of heart block or failure.

Treatment

Once a diagnosis is established, and the immediate care of the patient as outlined above is attended to, specific treatment is instituted wherever possible. There is a certain amount of general treatment necessary if the unconsciousness is at all prolonged; this consists essentially of good nursing care. Intravenous or duodenal feedings are given, the patient is turned every two hours and kept clean and dry; a retention catheter with irrigation may be needed, and enemas are given every two days.

Sedation, by means of the barbiturates or paraldehyde, may be needed in the restless unconscious patient. But morphine is never used in cases of craniocerebral injury, or where increased intracranial pressure is suspected (12).

Summary

The first step in the handling of an unconscious patient is to establish and maintain a free airway. If the patient is in shock, this must be treated at once. Then, a rapid history is taken from the patient's friends or relatives, and a physical examination is carried out, laying stress on assessing the level of consciousness and the state of the vital centres. Certain laboratory procedures are done as indicated. By this time, a diagnosis will have been made, so that immediate specific treatment is instituted wherever possible, followed by a certain amount of general treatment.

The author wishes to express his gratitude to Dr. Ian B. Macdonald and Dr. W. D. Stevenson, for their kindness in reading this paper, and making numerous helpful suggestions.

REFERENCES:

(1) Solomon, *P.*, and Aring, C. D.: Am. J. Med. Sci. 188: 805, (1943).
(2) Med. Research Council: War Memorandum No. 4, (1941).
(3) French, H.: An Index of Differential Diagnosis (1935).
(4) Hathaway, H. R.: J. Nerv. and Ment. Dis. 99:636 (1944).
(5) McKenzie, K. G.: Univ. of Toronto Med. J., January 1938.
(6) Solomon, P., and Aring, C. D.: Am. J. Med. Sci. 191:357, (1936).
(7) Solomon, P.: Med. Clin. of N. America, May 1938, page 617.
(8) Aring, C. D. and Merritt, H. H.: Arch. Int. Med. 56:435, (1935).
(9) Menninger, W. C.: J. Nerv. and Ment. Dis. 65:553, (1927).
(10) Solomon, P. and Aring, C. D.: J.A.M.A. 105:7, (1935).
(11) Marriott, H. L.: Lancet 1:926 (1933).
(12) Munro, D.: New Eng. J. Med. 210:287, (1934).

STERILITY—A METHOD OF INVESTIGATION

R. O. STEPHENS 4T7

I. *Introduction:*—The secret of success in the investigation of any case of sterility is the carrying out, in regular sequence, every step of an exhaustive plan, such as is given below. It will be noted that this plan includes a thorough study of *both* marital partners, as the husband is the responsible party in at least one-third of cases. Any couple seeking help should be kindly informed of this fact. They should also be told that there are often several causes acting in one case, which, though trivial in themselves, when added together cause sterility, and that spectacular results are only achieved when one has discovered all, not merely a few, of the faults present in any given case. Hence a thorough investigation of both partners is most essential.

II. *Investigational Method:*

1. *Examination of husband's semen.* This is simple and inexpensive but it often reveals the causative factor thus obviating further tests. Particular attention should be paid to:
   (a) Amount: average 3-6 cc.
   (b) pH average 8-9
   (c) Viscosity and consistency.
   (d) Microscopic examination.
      (i) Motility and degree of motility of spermatozoa. Not less than 85% should be motile. Motility is not however a proof of fertility.
      (ii) Number: normal 60-200 milion per cc.
      (iii) Abnormal Head Forms—size, shape etc. Not less than 80% should be normal.
2. *The History:* A thorough history should be obtained from both the husband and wife. Special reference should be made to:
   (a) History of past illnesses (mumps, V. D., genito-urinary diseases etc.)
   (b) Diet: protein, calcium and vitamin intake should be particularly noted as well as the use of alcohol.
   (c) Occupation: this may be a source of chronic intoxication.
   (d) Menstrual history.
   (e) Family history. The fertility of parents and siblings and the presence of any familial endocrine disorders should be noted in particular.
   (f) Marital history. This should include such data as the duration of married life, the history of previous pregnancies and abortions, the fertility record of any previous marriages and detail regarding the sex life of the couple.

3. *Physical Examination:*

(a) *of the Husband:* This should include:

(i) General physical examination. The genital organs should be examined most carefully.
(ii) Urinalysis.
(iii) Complete blood examination.
(iv) Blood Wasserman.
(v) Rh determination. This need be done only if there is a history of miscarriages.
(vi) Prostatic smear with Gram stain for gonococci.
(vii) B.M.R. This should be done especially if any endocrine disorder is suspected.
(viii) If the pituitary is under suspicion, a galactose tolerance test and an X-ray of the sella turcica may be done.

(b) *of the Wife.*

(i) General physical examination.
(ii) Pelvic examination.
(iii) Urinalysis.
(iv) Complete blood examination.
(v) Blood Wassermann.
(vi) Rh determination—as above only if history of miscarriages.
(vii) B.M.R.
(viii) Urethral and cervical smears with Gram stain for gonococci.
(ix) Hanging drop preparation of vaginal discharge for Trichomonads.
(x) Vaginal and cervical pH.

If the etiology has not yet been estabilshed further tests may be performed on the female.

I. *Tubal Patency Tests:*

These are indicated when the history and/or the pelvic examination suggests the possibility of closure of the tubal lumina (eg. Chronic adnexitis, low-grade inflammation, post-operative adhesions etc.) They are contra-indicated in the presence of any active infection or pathology in the genital tract.

(a) *Uterotubal Insufflation Test.*

(Rubin Test)

This should be done within a week after the cessation of a menstrual period. There are three checks for tubal patency viz. the manometer readings, the subjective symptoms (shoulder and/or interscapular pain due to subphrenic pneumoperitoneum) and auscultation over the ends of the tubes.

This test is primarily diagnostic but often proves to be therapeutic.

(b) *Hysterosalpingography:*

This consists of visualization of the uterus and Fallopian tubes with opaque substances (eg. iodized oil).

The procedure is indicated in those cases in which full passage of gas does not occur in the Rubin Test.

This test is also primarily diagnostic but is often therapeutic.

II. *Endometrial Biopsy:*

This gives important information regarding:

(i) the quantitative effects of the two ovarian hormones on the endometrium and

(ii) whether or not ovulation has occurred in a particular cycle. (i.e. it distinguishes between ovulatory and non-ovulatory cycles.)

To gather this information at least two biopsies should be taken during a menstrual cycle—one just prior to the expected date of ovulation and one a few days before the expected date of menstruation. (The performance and interpretation of Tubal Patency Tests and Endometrial Biopsies should be limited to those with special training in these fields.)

III. *Basal Body Temperature Studies.*

The daily rectal temperature of the wife is taken each morning before arising and recorded graphically. The rectal temperature is normally lower after menstruation and higher before. There is a marked shift from the lower to higher values at the time of ovulation. The wife can be taught to recognize this midmenstrual upswing and thus coitus can be made to coincide with the time of optimum fertility.

IV *Hormonal Studies:*

Hypothyroidism should be carefully looked for, (B.M.R. and clinical signs and symptoms) as this condition, even in a slight degree, depresses fertility markedly due either to a secondary upset of the pituitary-gonad balance or the harmful influence of sluggish metabolism on the germ plasm.

There is marked confusion and variance of opinion however, regarding the value of determining oestrogenic and gonadotropic levels in blood and urine, both chemically and biologically. A single test is unreliable and inadequate and repeated tests are expensive. Furthermore biological assays depend to a great extent on human judgment and therefore no absolute criteria can be laid down.

V. *Huhner Test:*

This consists of a post-coital examination of semen from the vaginal pool and endocervical canal. It is only indicated when direct examination of semen has shown normal results. The test gives information as to:

(i) whether secretions of the lower genital tract are hostile to the spermatozoa and

(ii) whether or not semen has been deposited in the vicinity of the cervical os.

Features

C. L. RODGERS, Editor

THE CLASS OF '47

L. RODGERS 4T7

The results of a questionnaire that was distributed to the final year are herein presented. Although the response was not 100% the facts obtained present a good picture of the graduating year.

Age:

21 years	5%
22 years	29%
23 years	26%
24 years	24%
25 years	7%
26 years	5%
Over 26	4%

Thus it can be seen that there is a wide age range in the year, the average age being 23 years. It is interesting to note that 12% of the class are of the fair sex. Also that 9% have braved the trip up the aisle and many more plan to do so shortly after the completion of the final exams.

25% of the year have some form of technical or professional training other than medicine. This ranges from bacteriologists, linguists, stenographers, machinists, welders, electricians and school teachers to tool-makers, salesmen, farmers, pharmacists, and saliva analysts.

Fully 92% enjoy outside interests and hobbies, with music in all its forms being by far the most popular interest. Photography and literature come next in choice while athletics and all forms of sports, camping, art and stamp collecting rank high. Also included in the list were politics, hunting, leather-craft, painting, public speaking, carpentry, fraternity, horticulture, mechanics, church work, model building, and horse racing and women! The list is impressive and indicates the versatility of the year.

At one time or another throughout the last five years 57% of the year have participated in faculty sports, basketball being the most popular and baseball, volleyball, rugby, hockey, track, and water polo following in order of the number of participants.

In answering the question "How many years do you hope to spend in post graduate work?" The following answers were received:

No. of years	Percentage of class
1	16%
2	21%
3	16%
4	10%
5	33%
More	4%

It is interesting to speculate as to the reason why the average length of time the class plans to spend in post graduate work is 3½ years. 50% stated that they would do no more than the length of time already planned whether or not they were financially able.

It is difficult for the student to be certain of what branch of medicine in which he hopes eventually to participate. However here are the present desires of the year:

General Practice	28%
Obstetrics and Gynecology	13%
Pediatrics	10%
Surgery	10%
Internal Medicine	10%
Psychiatry	5%
Anaesthesia	1.6%
Radiology	1.6%
Neurology	1.6%
Cardiology	1.6%
Ophthalmology	1.6%
Public Health	1.6%
Undecided	14.4%

The subjects most enjoyed by the students are listed below in orde of popularity:

Obstetrics and Gynecology
Medicine
Surgery
Pediatrics
Pathology
Anatomy
Physiology
Therapeutics
Hygiene

It would seem that Mr. Average Med of '47 is 23 years of age, probably possesses some outside skill and in addition participates in a hobby. Gynecology was his chief love in college but after his 3½ years of post grad work we may expect to find him plodding his lucrative way through the income tax forms as a general practitioner.

THE MEDICAL ATHLETIC ASSOCIATION

J. W. HAZLETT, *President*

An article such as this affords an opportunity to review the athletic program of the past year and attempt to encourage interest for next year.

The fall of 1946 began with a Meds Track Meet on October first at Varsity Stadium. The Dean, who admits interest in athletics, kindly consented to allow a half holiday. Competition in the full program of events was good with Second Year Medicine taking the Gallie Shield for track and Ted Schofield copping the individual honours.

After a very successful season the Sr. Meds rugby squad faced Victoria in the Mulock Cup finals at the stadium on November 21st. Shortly afterwards the Meds I lacrosse team centered off with P&HE for the Dafoe Cup in the big Hart House gym. Neither team was triumphant but much good spirit and enthusiasm was to be found among the players and supporters.

Later in the fall, Medicine and S.P.S. concerned themselves over the T. A. Reed trophy point system. A committee was formed and changes in the system drafted. Some of these went into effect this spring; the remainder to become active in the fall of 1947 assuring Medicine a fairer chance in competition with the increasing arts enrollment. The final T. A. Reed Trophy standings placed Meds and S.P.S. in 6th and 7th positions behind U.C., St. Mikes, Forestry, Victoria and Wycliffe.

Intramural figures revealed that a total of some 475 students participated in various team and individual sports as representatives of Medicine in 1946-47. This leaves a remainder of some 475 students who care to ignore the fact that a sound mind doesn't exist for long without a sound body.

Meds and Dents Athletic Nite was held on February 8 with these two faculties interesting the crowd with a Mr. Haemoglobin and Miss Molar competition.

On April first, the fourth annual Meds Spring Swing was held in Casa Loma with the Dean, Dr. Macfarlane and our Honorary President Dr. Cotes presenting eleven special awards and 36 Medical "M"s. The dance itself was a great success except for the very poor attendance.

Your executive cannot understand the great lack of interest in this fine spring dance which is certainly well liked by those who attend.

At any rate the acomplishments of your executive can be listed as; the procuring of a rugby and basketball coach, the rearrangement of the T. A. Reed point system, the careful financing of the smallest athletic budget on the campus, the accumulation of new athletic equipment and the encouragement of athletics to a point where half the undergraduates in Medicine participated.

For next year, I would express a hope that you all get behind your new executive and once again push Medicine to the heights of athletic endeavour.

Abstracts

C. L. ASZKANAZY, Editor

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SURGERY I

Local Use of Ice After Orthopedic Procedures. H. J. Schaubel: Amer. J. Surgery *72,* 711 (1946).

Immediately following surgery or manipulation, Schaubel applied cloth covered ice bags to the plaster or soft bandage over the operative site on 345 of 824 patients. The remaining 479 patients were untreated and served as controls. The ice caps were left on for forty-eight hours postoperatively and during that period were refilled every four hours and each hour the accumulated air within the bag was released to ensure a snug fit.

Schaubel found that in the patients on whom ice was applied locally in that manner, temperature, pulse and respiratory rates were lower and the white blood cell counts were more nearly normal. Fewer casts were split and appreciably less narcotics was required. Subjectively, the patients with locally applied ice bags were much better in all respects than those of the control group.

W. G. B. C.

PUBLIC HEALTH I

Tuberculosis Case Finding. C. C. Birkelo, W. E. Chamberlain, P. S. Phelps, P. E. Schools, D. Zacks, J. Yerushalmy: J. Amer. Med Assn. *133,* 359 (1947).

This report summarizes the findings of a Board of Roentgenology appointed by the Administrator of Veteran's Affairs, U.S.A., "to study the effectiveness, for tuberculous case finding, of various roentgenologic and photoflurographic methods."

On each of 1,256 persons, a 35 mm. photoflurogram, a 4 by 10 inch sterophotoflurogram, a 14 by 17 inch paper negative, and a 14 by 17 inch celluloid film were taken within a few minutes of each other. Independent interpretations of each of the four sets of films were made by each of two radiologists and three chest specialists and in addition a second independent interpretation of the large celluloid films was made by each of the five observers.

A detailed analysis of the material was made with respect to the variations resulting from the limitations of the methods employed and from subjective errors in film interpretation. The results justify the conclusion "that, except for a slight disadvantage to the miniature technics resulting from overreading, not one of the methods, not even the 14 by 17 inch celluloid, is superior, for case finding purposes, to any of the other methods."

Three recommendations are made as a result of this survey:

1. The problem of interindividual and intraindividual variation in film interpretation is of such large magnitude that it becomes important to subject this problem to a very extensive and detailed investigation.

2. A revision of the method of classifying X-rays, including that of the National Tuberculosis Association classification, is needed. Such revision must be based on extensive study and actual experimentation.

3. In mass survey work it is recommended that all survey films be read independently by at least two interpreters. All persons whose films are selected as positive or suggestive for tuberculosis by one o rother of the observers should be recalled for further study.

W. G. B. C.

MEDICINE I

Parental Vitamin B as Agent For Determining Arm To Tongue Circulation Time: Part I. R. E. Swenson: Amer. Heart J. *32,* 612 (1946).

The arm to tongue circulation time was determined by injecting 5 cc. of a vitamin B solution into the antecubital vein and letting the subject tell when he tasted the substance. In a control group of 50 normal subjects, Swenson found the average time to vary between 9.8 and 10.3 seconds for initial and duplicate determinations respectively. Similar determinations made on 52 patients with various heart diseases gave time values paralleling those obtained with other test agents. Advantages of using vitamin B include that it appears to be non-toxic, has little effect on circulatory dynamics, is readily available, is eliminated rapidly, and has an abrupt endpoint. Side reactions are minimal.

W. G. B. C.

MEDICINE II

Levels of Blood Pressure in Both Arms and Legs in Normal Subjects and Patients Suffering From Certain Diseases. H. J. Stewart, A. A. Newman, W. F. Evans: Amer. J. Med. *1,* 451 (1946).

The blood pressures in all four extremities of 21 healthy persons and 102 patients with various cardiac lesions are recorded. Stewart and his associates found that the systolic and diastolic blood pressures were higher in the legs than in the arms of normal subjects and of patients with hypertension, rheumatic heart disease with mitral stenosis and insufficiency, congenital heart diseases (except coarctation of the aorta), and hyperthyroidism. A reversal of this situation, higher diastolic and systolic pressures in the arms than in the legs, was found in 23 cases of coarctation of the aorta thus indicating the importance of this finding for coarctation.

W. G. B. C.

MEDICINE III

CHANGES IN THE VISUAL FIELDS CONFIRMED BY PATHOLOGIC DIAGNOSIS. D. J. Lyle: J. Amer. Med. Assn. *133,* 517 (1947).

LYLE points out that a thorough study of the visual fields is an aid to the diagnosis of intracranial lesions possibly of greater importance than ophthalmoscopic examination. He presents a brief review of the anatomy of the relevant parts of the visual system related to a study of the visual fields followed by a survey of the pathological conditions which may involve each of these parts: the retrobulbar optic nerve, the optic chiasm, the optic tract, the lateral geniculate body, the optic radiations, and the visual cortex.

He then presents "the following observations which may aid in developing and supporting proper diagnosis.

A. Locations

1. Inflammations are found chiefly forward in the retrobulbar optic nerve.
2. Tumors, especially neoplasms, are more frequently located in the area of the optic chiasm.
3. Vascular lesions more frequently affect the radiations and the cortex.

However, tumors, inflammations, degenerations and vascular disturbances may involve any part of the visual system.

B. Onset

1. Inflammations usually produce fairly rapidly changing fields. The chronic infections show less rapid changes but rather a slow gradual increase. Multiple sclerosis produces a rather rapid defect in the field, frequently relative in character, which may, and usually does, disappear within a short time.
2. Tumors, usually neoplastic, grow relatively slowly. So do aneurysms, which, before rupture, act as do tumors. Abscesses, tuberculomas and gummas are usually more rapid in their development and are usually accompanied by inflammatory symptoms. Hematomas from trauma, bleeding tumors, and ruptured aneurysms, and other vascular disturbances are rapid in the production of loss in the visual fields.
3. Vascular diseases are frequently instantaneous but, as in the case of thrombosis, may give a few days' warning by producing relative and intermittent defects in the visual fields before the circulation shuts down. Hemorrhages and emboli are instantaneous.

C. Duration (Prognosis)

1. Inflammations, as a rule, have a tendency to subside, so that the prognosis is relatively good. There is less chance of improvement the longer the defect in the field persists. Finding and eliminating the cause of the inflammation in time is an essential factor. Multiple sclerotic fields have a tendency to disappear in one location but may appear elsewhere. Defects in the visual fields from cerebrospinal syphilis do not, as a rule, improve but usually progress.

2. Tumors show gradual progress in changes in the visual fields unless the pressure is removed. They produce defects in the visual fields both by direct pressure on the nervous elements and by pressure on the nutrient vessels supplying these elements.
3. Vascular lesions behave according to type. There may be some improvement in cases of hemorrhage when absorption or surgical evacuation has removed the pressure. In the cases of thrombosis and embolus, if the blood supply cannot be reestablished, the defect remains."

W. G. B. C.

MEDICINE IV

Wirder H. and Lapington K. "Addiction to Meperidine Hydrochloride (Demerol Hydrochloride)" J.A.M.A. Dec. 1946.

Three case are presented to illustrate the fact that Demerol is an addicting drug and that the same precautions should be observed in its use as in the use of opiates. One patient described the effect of the drug as follows: "Demerol kicks me right up. It produces feelings I have never had and really desire. It relaxes my insides and I feel good. I forget my worries and feel exhilarated.

All aches, pains and nervousness leave me. No other medication ever gave me this type of pleasure."

In an addicted patient, three related phenomena occur (1) tolerance or the gradual decrease in the effect after repeated administration, (2) characteristic illness, if the drug is withheld, (3) an intense desire for the repetition of the exhilarating effects of the drug.

G. M.

MEDICINE V

Hardy T. L. "Biliary and Renal Colic" The Practitioner *158: 37* Jan. 1947.

Biliary Colic:

Etiology—Passage or attempted passage of stone or inspissated bile; spasm or achalasia of Oddi's sphincter in acute cholecystitis or after cholecystectomy; abnormal position of cystic duct or artery leading to kinking of gallbladder.

Attack—In early hours of morning or after meal or exertion, agonizing pain in right hypochondrium or epigastrium, referred to back under angle of right scapula; patient writhes, rigidity and tenderness moderate; thoracic respiration; lasts minutes to hours.

Differential—Diaphragmatic pleurisy and acute lobar pneumonia: perforation of peptic ulcer; angina pectoris; coronary occlusion; gastric crises; acute pancreatitis.

Treatment—Morph. gr. ¼ - ½, local heat, fluids, bed rest 1 week; then light diet, high carbohydrates, low fat; at end of acute stage, milk, olive oil or decholin sodium grs. iv - viii bid - tid to stimulate bile flow; surgery for empyema, perforation or repeated attacks.

Renal Colic:

Etiology—calculus; debris (sulphonamides, oxalates, urates, phosphates), inspissated material (blood clot, pus), kinking of ureter (aberrant vessel, mobile kidney).

Attack—Agonizing, writhing pain, vague and deep in loin, referred to groin, testes or vulva; symptoms of shock; rigidity and tenderness, hyperaesthesia; kidney enlarged and tender; haematuria or anuria; pain on micturition.

Differential—Biliary colic; appendicitis (right); colic spasm (left).

Treatment—Morph. gr. ¼ - ½, heat, atrop. gr. 1/100, may need chloroform anaesthesia; bed rest until no pain or haematuria; daily urinalysis; push fluids (5 pints daily); in acid urine, Pot. citrate grs. xx - xxx tid; if pain persists, Tinct. Belladonnae min. x; later complete investigation; Diet: Vit. A. In uric acid stones, low meat, especially kidney, liver, sweetbread, brain, tea, coffee; in oxaluria, avoid strawberries, rhubarb, spinach, asparagus, tomatoes, or eat it together with fats.

C. L. A.

RECENT ACCESSIONS TO THE MEDICAL READING ROOM

Bell, E. T.: Renal diseases. 1946.
Brieger, E. M.: The Papworth families, a 25 years survey. 1944.
Cantor, A. J.: Ambulatory proctology. 1946.
Cullen, S. C.: Anesthesia in general practice. 1946.
Cushing, Harvey Williams: Fulton, J. F.: Harvey Cushing. 1946.
Dunbar, H. F.: Emotions and bodily changes. ed. 3. 1946.
Experimental hypertension. (Special publication of the New York Academy of Sciences,) vol. 3. 1946.
Fletcher, E.: Medical disorders of the locomotor system. 1947.
Groedel, F. M.: The venous pulse and its graphic recording. 1946.
Harvey Society, New York: Harvey lectures, 41. 1945/46.
Kalinowsky, L. B. and Hoch, P. H.: Shock treatments and other somatic procedures in psychiatry. 1946.
Kestenbaum, A.: Clinical methods of neuro-ophthalmolgic examination. 1946.
Kisskalt, K.: Theorie und Praxis der medizinischen Forschung. 1942.
Krueger, R.: Amtliches Unterrichtsbuch über Erste Hilfe. 1944.
McCrea, L. E.: Clinical cystoscopy. 2v. 1946.
Movitt, E. L.: Digitalis and other cardiotonic drugs. 1946.
Pharmaceutical Society of Great Britain: Penicillin; its properties, uses and preparations. 1946.
Pillmore, G. U. (ed.): Clinical radiology. 2v. 1946.
Powers, W. H. (ed.): Advancing fronts in chemistry. vol. 2—Chemotherapy. 1946.
Richards, R. L.: The peripheral circulation in health and disease. 1946.
Stone, E. L.: The new-born infant; a manual of obstetrical pediatrics. ed. 3. 1945.
Tomkins, S. S.: Contemporary psychopathology. 1946.
Wyburn-Mason, R.: The vascular abnormalities and tumors of the spinal cord and its membranes. 1943.

DAFFYDIL NIGHT '46

Condensed Expense Sheet

RECEIPTS

1.	Ticket sale (1444 x 1.25)	$1,805.00
2.	Programme advertising	146.00
	TOTAL	1,951.00

DISBURSEMENTS

A.	Rental of Halls (Hart House and Rehearsals)	227.87
B.	Stage Expenses (scenery, props, lights, amplifier, etc.)	214.62
C.	Music (orchestra, pianos)	449.00
D.	Chorus (costume materials, gift for trainer)	85.65
E.	Skits and Choir (Mallabars and other props)	201.34
F.	Publicity, Tickets, Programme Printing	258.73
G.	Cast Banquet (Hall, music, catering, incidentals)	338.85
H.	Miscellaneous (Stamps, Breakages, Key Die)	48.42
	TOTAL	1,824.48
	Balance brought forward Sept. '46	103.60
	Total Receipts	1,951.00
		2,054.60
	Total Expenditures	1,824.48
	Balance on hand Mar. 12/47	230.12
	Balance in bank Feb. 28/47	231.78
	Outstanding cheque (credit) for advertising in programme	23.00
	Cash on hand	7.21
		261.99
	Outstanding cheques (debit) { N. Staron 20.87	31.87
	F. Evis 11.00	
		230.12

W. R. LAWLER

For the Treatment of

VARICOSE ULCERS
DECUBITUS ULCERS
ABRASIONS • BURNS
INDOLENT WOUNDS
PILONIDAL SINUS
INTERTRIGO

Post phlebitic eczema and ulceration
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"GADOMENT"

Ointment No. 753 "Frosst"

Available in one ounce tubes and one pound jars.

Gadoment contains 70% non-destearinated cod liver oil in a wax base. Carbolic acid 0.375% has been added as a mild tissue anesthetic. Benzoin and zinc oxide are present in small quantities for their soothing and drying factors.

DIRECTIONS:

Spread Gadoment on waxed or paraffined paper, cellophane or tightly woven cloth (not gauze), lay it on the exposed area and cover with suitable protection. Renew the dressing as conditions require.

In the excision of pilonidal sinus a gauze pack saturated with Gadoment is applied. The pack should be removed daily and a fresh one applied.

Charles E. Frosst & Co.
MONTREAL CANADA

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SINCE 1899
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IN PHARMACEUTICAL RESEARCH

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